UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/518,551	03/03/2000	Govindaraju Gnanasivam	A-66977/RMA/LM	5668

7590	01/02/2004	EXAMINER

Flehr Hohbach Test Albritton & Herbert LLP
Four Embarcadero Center
Suite 3400
San Francisco, CA 94111-4187

EXAMINER
KING, JUSTIN

ART UNIT	PAPER NUMBER
2111	

DATE MAILED: 01/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application	Applicant(s)
Office Action Summary	09/518,551	GNANASIVAM ET AL.
	Examiner	**Art Unit**
	Justin I. King	2111

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *24 October 2003* .

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-26, 28 and 29* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-3, 5-26, 28 and 29* is/are rejected.

7) ☒ Claim(s) *4* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☒ The proposed drawing correction filed on *10/24/03* is: a)☒ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on 10/24/03 has been entered.

Specification

2.   The abstract of the disclosure is objected to because it exceeds the maximum of 150

words. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter, which the applicant regards as his invention.

4.   Claims 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

Claim 18 recites the limitation "a logical I/O device" in 4th limitation. There is sufficient

antecedent basis for this limitation in the claim. The claim 18 includes claim 16, which discloses

a logical I/O device.

Claim 19 recites the limitation "a logical I/O device" in line 4. There is sufficient antecedent basis for this limitation in the claim's preamble.

Claim 20 recites the limitation "a logical I/O device" in line 4. There is sufficient antecedent basis for this limitation in the claim's preamble.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6.   Claims 1-2, 7-8, 11, 19, 21-26, and 28-29 are rejected under 35 U.S.C. 102(a) as being anticipated by Uchihori et al. (U.S. Patent No. 5,996,014).

Referring to claim 1: Uchihori discloses a method for managing access to a logical I/O device (figure 3, structures 31-1 to 31-m), said method comprising: communicatively coupling first and second nodes (figure 3, element servers), having respective first and second bus controllers (figure 3, structures 32-11 to 32-1m) having respective first and second reservation tables (column 13, lines 11-14 and 37-40); and said logical I/O device, by means of a bus and said first and second bus controllers (column 2, lines 39-42); receiving on said first controller a request to reserve said logical I/O device and updating the first reservation table to reflect reservation of the logical I/O device; and communicating by means of said bus from said first to said second controller a reservation request for said logical I/O device for updating by said

second controller of said second reservation table, in response to said receiving (column 13, lines 37-40). Hence, claim is anticipated by Uchihori.

Referring to claim 2: Since each of Uchihori's element servers updates and synchronizes its own reservation table with each other, Uchihori's system reserves said logical I/O device for said first node within said second controller in response to said communicated reservation request.

Referring to claim 7: Uchihori discloses a computer-readable medium for data storage wherein is located a computer program including instructions for causing a first node (figure 3, structure 32-1) in a computer system, having a first bus controller (figure 3, structure 32-11) having a first reservation table (column 13, lines 11-14 and 37-40), to manage access to a logical I/O device (figure 3, structure 31-1 to 31-m) in said computer system by: receiving on said first controller a request to reserve said logical I/O device; updating the first reservation table to reflect reservation of the logical I/O device and communicating in response to receiving said request, a reservation request for said logical I/O device from said first controller to a second controller of a second node for updating of a second reservation table by said second controller (column 13, lines 37-41). Hence, claim is anticipated by Uchihori.

Referring to claim 8: Since each of Uchihori's element servers updates and synchronizes its own reservation table with each other, Uchihori's system reserves said logical I/O device for said first node within said second controller in response to said communicated reservation request.

Referring to claim 11: Uchihori discloses a computer system comprising: at least one logical I/O device (figure 3, structure 32-1 to 320m); first and second nodes (figure 3, element

servers) having respective first and second bus controllers (figure 3, structure 32-11 to 32-N1)

having respective first and second reservation tables (column 13, lines 11-14 and 37-40), said

first controller comprising: a computer-readable medium storing a computer program for

managing access to said logical I/O device by a first node in said computer system, said

computer program including instructions for: receiving on said first controller a request to

reserve said logical I/O device; updating the first reservation table to reflect reservation of the

logical I/O device; and communicating in response to receiving said request, a reservation

request for said logical I/O device from said first controller to a second controller of a second

node for updating of the second reservation table by said second controller; a CPU, coupled to

said computer-readable medium, for executing said computer program stored in said medium;

and a bus communicatively coupling said first and second nodes and said logical I/O device by

means of said first and second controllers (column 2, lines 38-42, column 13, lines 37-40).

Hence, claim is anticipated by Uchihori.

Referring to claim 19: Uchihori discloses an apparatus for managing access to a logical

I/O device (figure 3, structure 31-1), said apparatus comprising: means for communicatively

coupling first and second nodes (figure 3, element servers), having respective first and second

bus controllers (figure 3, structure 32-11 to 32-N1) having respective first and second reservation

tables (column 13, lines 11-14 and 38-42) and logical I/O device ; means for receiving on said

first controller a request to reserve said logical I/O device; means for updating the first

reservation table to reflect reservation of the logical 1/O device (column 13, lines 38-42); and

means for communicating from said first to said second controller a reservation request for said

logical I/O device for updating of said second reservation table by said second controller, in

response to said receiving. Hence, claim is anticipated by Uchihori.

Referring to claim 21: Uchihori discloses an apparatus for managing access to a logical

I/O device (figure 3, structure 31-1), said apparatus comprising: means for communicatively

coupling first and second nodes (figure 3, element servers), having respective first and second

bus controllers (figure 3, structure 32-11 to 32-N1) having respective first and second reservation

tables (column 13, lines 11-14 and 37-42) and logical I/O device; means for receiving on said

first controller a request to release said logical I/O device; means for updating the first

reservation table to reflect release of the logical I/O device and means for communicating by

means of said bus from said first to said second controller a request for said logical I/O device

for updating of said second reservation table by said second controller, in response to said

receiving. Hence, claim is anticipated by Uchihori.

Referring to claim 22: Uchihori discloses the logical input/output device is selected from

a plurality of logical input/output devices coupled with a physical input/output device (figure 3).

Referring to claim 23: Uchihori discloses a bus (figure 3).

Referring to claim 24: Uchihori discloses a plurality of physical I/O devices (figure 3).

Referring to claim 25: Uchihori discloses the RAID (column 5, lines 36), which said

logical I/O device is selected from a plurality of logical I/O devices, with each logical I/O device

defined in part on a common physical I/O device.

Referring to claim 26 Uchihori discloses that said logical I/O device spans a plurality of

physical I/O devices (figure 3), and said reservation request reserves said logical I/O device

without reserving each of said plurality of physical I/O devices (column 2, lines 38-42).

Referring to claim 28: Uchihori discloses the SCSI devices (column 5, line 80).

Referring to claim 29: Since each of Uchihori's element servers updates and synchronizes

its own reservation table with each other, Uchihori receives successful communication from said

second controller; and completing the reservation command to an operating system after

receiving said successful communication.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

8.   The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

9.   Claims 3, 5-6, 9-10, 12-18, and 20 are rejected under 35 U.S.C. 103(a) as being

unpatentable over the combination of Uchihori and Hammersley et al. (U.S. Patent No.

5,392,433).

Referring to claim 3: Although Uchihori does not explicitly disclose the steps of resource

availability and the acknowledgement of the available status, an Official Notice is taken that

such practice is well-known in the computer art. Furthermore, Hammersley teaches the failure

response due to the unavailability and the confirmation on successful reservation (figures 5A1-2,

5B). Hence, it would have been obvious to one having ordinary skill in the computer art to adopt

Hammersley's teaching to Uchihori because Hammersley teaches one to confirm the requested

shared resource's status for proper handling the operation.

Referring to claim 5: Uchihori discloses multi-logical-devices (figure 3, structures 31-1 to

31-m) and the third controller (figure 3, element server 32-n).

Referring to claims 6 and 9-10: Claims are rejected as the claim 3's argument above.

Referring to claims 12 and 14: As discussed above, Uchihori discloses a method for

managing access to a logical I/O device, said method comprising: communicatively coupling

first and second nodes having respective first and second bus controllers having respective first

and second reservation tables, and said logical I/O device, by means of a bus and said first and

second controllers; receiving, on said first controller, a request to said logical I/O device;

updating the first reservation table to reflect the request of the logical I/O device; and

communicating a request for said logical I/O device over said bus from said first controller to

said second controller for updating of a second reservation table by said second controller, in

response to said receipt of said request.

Uchihori does not explicitly disclose the request is a release request. Hammersley

teaches a release request on a shared resource (figure 6). Hence, it would have been obvious to

one having ordinary skill in the computer art to adopt Hammersley's teaching to Uchihori

because Hammersley enables one to free up one particular shared resource from exclusive usage.

Referring to claim 13: Since each of Uchihori's element servers updates and synchronizes its own reservation table with each other, Uchihori's system reserves said logical I/O device for said first node within said second controller in response to said communicated reservation request.

Referring to claim 15: Claim is rejected as the claim 5's argument above.

Referring to claims 16-18: Uchihori discloses a computer-readable medium for data storage wherein is located a computer program for causing a first node (figure 3, element servers) in a computer system, having a first bus controller (figure 3, structure 32-11) having a first reservation table (column 13, lines 11-14 and 37-40), to manage access to a logical I/O device (figure 3, structure 31-1) in said computer system by: receiving on said first controller a request to release said logical I/O device (column 2, lines 38-42); updating the first reservation table to reflect release of the logical 1/O device (column 13, lines 37-40); and communicating by means of a bus from said first controller to a second controller of a second node a request for said logical I/O device for updating of a second reservation table by said second controller, in response to said receiving.

Although Uchihori does not explicitly disclose the request is a release request, an Official Notice is taken that the release request is well known in task prioritizing and task preemption. Furthermore, Hammersley teaches a release request on a shared resource (figure 6). Hence, it would have been obvious to one having ordinary skill in the computer art to adopt Hammersley's teaching to Uchihori.

Referring to claim 20: Uchihori discloses an apparatus for managing access to a logical I/O device (figure 3, structure 31-1), said apparatus comprising: means for communicatively

coupling first and second nodes (figure 3, element servers), having respective first and second

bus controllers (figure 3, structure 32-11 to 32-N1) having respective first and second reservation

tables (column 13, lines 11-14 and 37-42) and logical I/O device; means for receiving on said

first controller a request to release said logical I/O device; means for updating the first

reservation table to reflect release of the logical I/O device and means for communicating by

means of said bus from said first to said second controller a request for said logical I/O device

for updating of said second reservation table by said second controller, in response to said

receiving.

Although Uchihori does not explicitly disclose the request is a release request, an Official

Notice is taken that the release request is well known in task prioritizing and task preemption.

Furthermore, Hammersley teaches a release request on a shared resource (figure 6). Hence, it

would have been obvious to one having ordinary skill in the computer art to adopt Hammersley's

teaching to Uchihori.

Response to Arguments

10.   In response to applicant's argument that the examiner's conclusion of obviousness is

based upon improper hindsight reasoning, it must be recognized that any judgment on

obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so

long as it takes into account only knowledge which was within the level of ordinary skill at the

time the claimed invention was made, and does not include knowledge gleaned only from the

applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392,

170 USPQ 209 (CCPA 1971). In this case, the cited prior arts are directing to managing the

shared system resources. Judd focuses on the storage device, and the Uchihori and Hammersley focuses on any shard computer resources including the storage device (abstract). Hammersley enables one to enhance the performance over the lock granularity (column 1). Barlow focuses on improving the priority logic for use in a data processing system in which a plurality of units are coupled over a common bus (column 2, paragraph 2), and Barlow enables one to enhance the performance of the common bus.

Allowable Subject Matter

11.   Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12.   The following is a statement of reasons for the indication of allowable subject matter: The prior arts do not explicitly disclose any computer share-resource management including the steps in claim 4, which are receiving the response to the communicated reservation request; aborting the method for managing access when said response indicates failure to reserve and said first controller is subordinate to said second controller; otherwise, delaying and communicating again a reservation request for said logical I/O device when said response indicates failure to reserve and said first controller is dominant to said second controller; and otherwise, responding, indicating success, to said received reservation request.
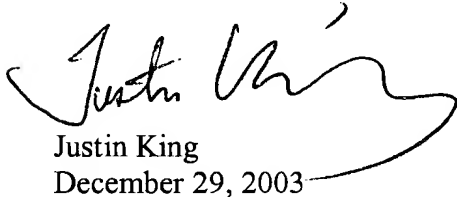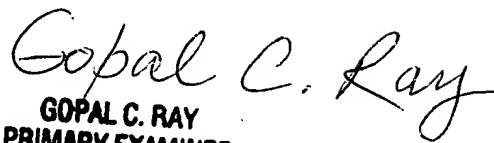
Conclusion

13.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Justin I. King whose telephone number is 703-305-4571. The

examiner can normally be reached on Monday through Friday, 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mark Rinehart can be reached on 703-308-3I/O. The fax phone numbers for the

organization where this application or proceeding is assigned are (703) 872-9306 for regular

communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is 703-306-5631.

Justin King
December 29, 2003

GOPAL C. RAY
PRIMARY EXAMINER
GROUP 2300